

ABSTRACT

An excimer or molecular fluorine laser system includes a discharge chamber filled with a laser gas mixture at least including a halogen-containing molecular species and a buffer gas, multiple electrodes within the discharge chamber connected to a discharge circuit for energizing the gas mixture, and a resonator for generating a laser beam including an optical component made of MgF₂. The optical component made of MgF₂ has been previously cleaved along a predetermined plane, such that the refractive indices of the birefringent MgF₂ material for orthogonal polarization components of the beam are either at least approximately equal so that the polarization of the beam due to the influence of the birefringent nature of the MgF₂ material is not substantially reduced, or are approximately maximum so that at least a portion of one of the components is rejected by the resonator so that the polarization of the beam is increased due to the birefringent nature of the MgF₂.